

**LABEL-FREE DETECTION OF NUCLEIC ACIDS
VIA SURFACE PLASMON RESONANCE**

ABSTRACT OF THE DISCLOSURE

Disclosed is a method to detect unlabeled nucleic acids (DNA and/or RNA) in a taxa, species, and organelle-specific fashion using surface plasmon resonance (SPR) imaging. Taxa-specific, species-specific, or organelle-specific nucleic acids are affixed to an SPR-suitable substrate. A nucleic acid sample to be analyzed is then contacted with the SPR-substrate and the substrate analyzed to determine the presence or absence of specific hybridization between the nucleic acids bound to the substrate and the nucleic acids contained in the sample. The method does not require that either the bound nucleic acids nor the sample nucleic acids be labeled. The method can be used to identify the source of nucleic acids, their sequence, as well as to identify organisms and place them within a given taxonomic hierarchy.